IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application	: **10/075,310**
Applicant(s)	: **HABETHA, Joerg**
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Title: **NETWORK WITH AN ADAPTATION OF THE FRAME STRUCTURE OF SUBNETWORKS**

Mail Stop: **APPEAL BRIEF - PATENTS**
Commissioner for Patents
Alexandria, VA 22313-1450

APPEAL UNDER 37 CFR 41.37

Sir:

This is an appeal from the decision of the Examiner dated 18 October 2006, finally rejecting claims 1-19 of the subject application.

This paper includes (each beginning on a separate sheet):

1. **Appeal Brief;**
2. **Claims Appendix;**
3. **Evidence Appendix; and**
4. **Related Proceedings Appendix.**

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The above-identified application is assigned, in its entirety, to **Koninklijke Philips Electronics N. V.**

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any co-pending appeal or interference that will directly affect, or be directly affected by, or have any bearing on, the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-19 are pending in the application.

Claims 1-19 stand rejected by the Examiner under 35 U.S.C. 103(a).

These rejected claims are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final rejection in the Office Action dated 18 October 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This invention addresses communications among bridged subnetworks (Applicant's FIG. 1). In an example embodiment the timing of a first subnetwork is adjusted to minimize the waiting time between the receipt of a frame from the first subnetwork and the transfer of the frame to the second network via the bridge terminal. The timing is preferably adjusted such that the timing difference between the first and second subnetworks corresponds to a maximum switchover time of the bridge terminal (page 7, lines 5-11). For optimal bidirectional transfer efficiency, a timing difference of half a frame length is preferred, assuming that the maximum switchover time is less than or equal to half a frame length (page 7, lines 11-13).

As claimed in independent claim 1, an embodiment of the invention comprises a network comprising a plurality of subnetworks (1, 2, 3 of FIG. 1) which can each be connected via bridge terminals (4, 5) and each include a controller (18 of FIG. 2; 29 of FIG. 4) for controlling a subnetwork, which controller is provided for shifting the frame structure of its subnetwork to at least a frame structure of another subnetwork (FIGs. 7-10) (page 7, lines 5-11).

As claimed in dependent claim 4, an embodiment of the invention comprises a network as claimed in claim 1, characterized in that a controller of a first subnetwork is provided for shortening frames, and at least a controller of another subnetwork is provided for lengthening frames or for inserting an unused phase between successive frames (FIGs. 7 and 8) up to a prescribed frame difference of the frame structures of the two subnetworks (page 8, lines 24-29; page 1, line 24 – page 2, line 2).

As claimed in dependent claim 5, an embodiment of the invention comprises a network as claimed in claim 1, characterized in that a controller of a subnetwork is provided for communicating with at least another controller of another subnetwork regarding the type of shift (page 9, lines 9-15).

As claimed in dependent claim 6, an embodiment of the invention comprises a network as claimed in claim 1, characterized in that a bridge terminal is provided for instructing the controllers of the subnetworks connecting them as to which controller is to carry out a shift and in which direction (page 9, lines 9-12).

As claimed in independent claim 7, an embodiment of the invention comprises a controller (18 of FIG. 2; 29 of FIG. 4) in a first subnetwork (1) which can be connected to other subnetworks (2, 3) of a network (FIG. 1) via bridge terminals (4, 5), the controller being provided for controlling the first subnetwork and for displacing

the frame structure of the first subnetwork relative to at least one frame structure of another subnetwork (FIGs. 7-10) (page 7, lines 5-11).

As claimed in independent claim 10, an embodiment of the invention comprises a network (FIG. 1), comprising:

a first centralized subnetwork (1) comprising a plurality of first terminals (4-9), each first terminal having an associated first controller (18 of FIG. 2), wherein one of the first controllers is a first central controller (page 4, lines 13-15) responsible for forming associated first medium access control (MAC) frames according to a first MAC frame structure for transmission in the first subnetwork (page 5, lines 4-7), and wherein one of the first terminals is a first bridge terminal (4) for communication of the first MAC frames to another subnetwork; and

a second centralized subnetwork (2) comprising a plurality of second terminals (4, 10-12), each second terminal having an associated second controller (18 of FIG. 2), wherein one of the second controllers is a second central controller (page 4, lines 13-15) responsible for forming associated second MAC frames according to a second MAC frame structure for transmission in the second subnetwork (page 5, lines 4-7), and wherein one of the second terminals is a second bridge terminal (4) for communication of the second MAC frames to another subnetwork,

wherein the central first controller shifts the first MAC frame structure to the second MAC frame structure (page 7, lines 5-11).

As claimed in dependent claim 11, an embodiment of the invention comprises a network as claimed in claim 10, wherein the central first controller shifts the first MAC frame structure by inserting an unused phase between two respective MAC frames of the first MAC frame structure, the unused phase corresponding to a switchover time (Ts) of the first bridge terminal (page 7, lines 7-11).

As claimed in dependent claim 12, an embodiment of the invention comprises a network as claimed in claim 10, wherein the central first controller shifts the first MAC frame structure by lengthening the first MAC frames, said lengthening corresponding to a switchover time of the first bridge terminal (page 7, lines 7-11).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-19 stand rejected under 35 U.S.C. 103(a) over Yonge[1] et al. (USP 6,671,284, hereinafter Yonge) and Malek et al. (USP 5,666,366, hereinafter Malek).

VII. ARGUMENT

Claims 1-19 stand rejected under 35 U.S.C. 103(a) over Yonge and Malek

Claims 1-19

MPEP 2143 states:

> "THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION ... The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). ... The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)".

There is no suggestion in the prior art to combine Yonge and Malek. Yonge teaches a network of bridged subnetworks. Malek teaches a cell-phone network that is substantially different from a bridged network, and subject to substantially different constraints.

As illustrated in Yonge's FIG. 32, in a bridged network, a bridge element 628 provides the coupling between subnetworks 622, 626. The bridge element 628 provides a port 648c and 652a in each subnetwork. When the bridge element 628

[1] The Office action refers to USP 6,671,284 as "Markwalter et al.". USP 6,671,284 is issued to Yonge III et al. USP 6,577,630 is issued to Markwalter et al. and includes a specification that substantially corresponds to Yonge's specification.

receives a message from a first subnetwork addressed to a distant subnetwork, it acts as a proxy for the destination address and accepts responsibility for forwarding the message to the destination (Yonge, column 35, lines 47-52). It performs this forwarding function by transmitting the message to the second subnetwork via its second port. This forwarding process incurs a significant non-zero delay, because, as illustrated in Yonge's FIGs. 27A-27B, in a conventional bridged network, acknowledgement of receipt of the message does not occur until the end of the frame, and a transfer to a subsequent subnetwork will not generally be started until the entire frame is verified as being properly received. As discussed further below, because of the non-zero switchover time, a conventional synchronization of bridged subnetworks will generally degrade the performance of the network by forcing a full frame period of delay to effect each transfer; thus, the subnetworks of a conventional bridged network are not synchronized.

Malek teaches a synchronization scheme for a conventional TDMA cell-phone system. As illustrated in Malek's FIG. 1, the system comprises base stations 12, 15, 16, and mobile elements 10, 11, 13, 14. Of particular note, the base stations 12, 15, 16 do not transfer messages to each other, per se:

> "The various base stations in the TDMA system are connected to the public telephone lines (not shown). ... The various base stations 12, 15, and 16 convert the received TDMA signals from the handheld telephones 10, 11, 13 and 14 to conventional analog POTS, BRI, or PRI signals for transmission over the telephone lines. Similarly, the base stations 12, 15, and 16 convert the received information on the telephone lines to TDMA signals for transmission to the handheld telephones 10, 11, 13, and 14." (Malek, column 1, lines 41-54.)

That is, Malek does not teach a bridged network, as the term bridged network is conventionally used, and as it is used in Yonge.

In a mobile cell-phone environment, the mobile devices are synchronized to their local base station. Malek teaches a technique for synchronizing the local base stations to a master base station, so that when a mobile device switches from one base station to the next, the mobile device's signals are likely to be in sync with the next base station. In this manner, the resynchronization of the mobile device to the

next base station will not cause unacceptable gaps in the communications between the mobile device and the public telephone lines. (Malek, column 2, lines 2-62)

The applicant respectfully maintains that Malek's teachings of how to minimize the re-synchronization delay of mobile devices as they transfer from one base station to the next has no bearing or relevance to the operation of a bridged network as taught by Yonge.

The applicant uses the principles of a conventional digital phase-locked loop to increase or decrease the phase of the frames of the subnetworks in the example embodiments of the applicant's invention; Malek also uses a conventional digital phase-locked loop to effect a phase change. The applicant does not claim to have invented a digital phase-locked loop; rather, the applicant claims a method and system for improving the efficiency of a bridged network by shifting the frame structure of a subnetwork to the frame structure of another subnetwork in the bridged network. Yonge does not teach or suggest that efficiencies can be achieved in a bridged network by shifting the frame structures of the subnetworks, and there is no suggestion in the prior art to apply the teachings of Malek for minimizing the resynchronization delay of mobile devices to a bridged network.

The courts have consistently upheld that the claimed combination must be suggested by the prior art, rather than by the applicant's specification:

> "When prior-art references require a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must *suggest* the desirability, and thus the obviousness, of making the combination. It is impermissible to use the claims as a frame and the prior-art references as a mosaic to piece together a facsimile of the claimed invention." (emphasis added) *Uniroyal Inc. v. Rudkin-Wiley Corp.,* 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art *suggested* the desirability of the modification." (emphasis added) *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992).

The applicant respectfully maintains that, absent the applicant's disclosure, one of ordinary skill in the art would not have been motivated to combine the teachings of Yonge and Malek, as suggested by the Examiner.

Further, assuming in argument that the suggested combination of Yonge and Malek is embodied, the applicant respectfully notes that MPEP 2143 also states:

> "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification."

Malek teaches a conventional synchronization of devices, wherein the same sync frame pulse is used in all of the devices to initiate each frame:

> "The RF transmission of each base station contains a Unique Word in each slot in the frame. Upon receiving the transmission and correlating the Unique Word field against the expected Unique Word, a frame sync pulse is derived.
>
> "One base station is designated a master base station, and the other base stations, acting as slave base stations, synchronize to the master base station by synchronizing their frame pointers to the master frame pointer." (Malek, column 5, lines 26-34.)

The applicant respectfully maintains that if Malek's teachings are applied to Yonge, the performance of the combined system will, in general, be degraded compared to Yonge's asynchronous design. If the subnetworks of a bridged subnetwork are synchronized using the teachings of Malek so that the frame pointers of each subnetwork occur at the same time, a full frame length after receipt of the message will always be required before the message can be transferred to the other subnetwork.

As taught by the applicant, the frames of the subnetworks are not synchronized in the conventional sense; rather, they are shifted by an amount based on the maximum switchover time of the bridge terminal. The combination of Yonge and Malek does not provide this teaching, and, absent this teaching, will result in generally poorer performance than Yonge's asynchronous design. The applicant respectfully maintains that a generally poorer performing network is unsatisfactory for its intended purpose, and as such, a combination of Yonge and Malek cannot be said to be suggested by the prior art.

Because there is no suggestion in the prior art to combine Yonge and Malek, and because, absent the applicant's teachings, the proposed combination of Yonge

and Malek will be unsatisfactory for its intended purpose, the applicant respectfully maintains that the rejection of claims 1-19 under 35 U.S.C. 103(a) over Yonge and Malek is unfounded, per MPEP 2143.

Claim 4

Assuming in argument the combination of Yonge and Malek, the applicant respectfully maintains that the asserted combination of Yonge and Malek does not teach or suggest a controller of a first subnetwork is provided for shortening frames, and at least a controller of another subnetwork is provided for lengthening frames or for inserting an unused phase between successive frames up to a prescribed frame difference of the frame structures of the two subnetworks.

The combination of Yonge and Malek does not teach defining a prescribed frame difference and correspondingly shortening frames in one subnetwork while lengthening the frames in another up to this prescribed difference. In Malek, each base station is synchronized to the master base station independently.

As discussed above, to improve the performance of a bridged network, the frames of the subnetworks are not synchronized in the conventional sense; rather, they are shifted by a prescribed amount based on the maximum switchover time. By shifting the two subnetworks in opposite directions, the task of achieving the prescribed shift is shared by both subnetworks.

Claim 5

Assuming in argument the combination of Yonge and Malek, the applicant respectfully maintains that the asserted combination of Yonge and Malek does not teach or suggest a controller of a subnetwork that is provided for communicating with at least another controller of another subnetwork regarding the type of shift.

As noted above with regard to claim 4, the combination of Yonge and Malek does not teach a coordination between the subnetworks regarding how to achieve an appropriate shift. Malek teaches a conventional synchronization to a master frame pulse; the master base station merely provides the master pulse, and the master

pulse does not convey any information regarding the type of shift required at each base station; each base station synchronizes to the master frame pulse by either increasing or decreasing a frame's length based on the timing of its local frame pulse (Malek's FIG. 6).

Claim 6

Assuming in argument the combination of Yonge and Malek, the applicant respectfully maintains that the asserted combination of Yonge and Malek does not teach or suggest a bridge terminal that is provided for instructing the controllers of the subnetworks connecting them as to which controller is to carry out a shift and in which direction.

The combination of Yonge and Malek does not teach or suggest communications between a bridge terminal and the controllers of the subnetworks, and specifically does not teach communications regarding which the direction to which each subnetwork is to shift. As noted above, Malek teaches the communication of a master frame pulse, to which each base station synchronizes, independently, based on the timing of its local frame pulse.

Claims 11 and 12

Assuming in argument the combination of Yonge and Malek, the applicant respectfully maintains that the asserted combination of Yonge and Malek does not teach or suggest a central first controller that shifts a first MAC frame structure by inserting an unused phase between two respective MAC frames, or lengthening a MAC frame, of the first MAC frame structure, the insertion or lengthening corresponding to a switchover time of a first bridge terminal.

The combination of Yonge and Malek is silent with regard to the switchover time of a bridge terminal, and thus cannot be said to teach inserting an unused phase corresponding to such a switchover time.

CONCLUSIONS

Because there is no suggestion in the prior art to combine Yonge and Malek, and because the proposed combination will generally degrade the performance of Yonge's design, the applicant respectfully requests that the Examiner's rejection of claims 1-19 under 35 U.S.C. 103(a) over Yonge and Malek be reversed by the Board, and the claims be allowed to pass to issue.

Because the asserted combination of Yonge and Malek fails to teach or suggest lengthening the frames in one subnetwork while shortening the frames in another, the applicant respectfully requests that the Examiner's rejection of claim 4 under 35 U.S.C. 103(a) over Yonge and Malek be reversed by the Board, and the claim be allowed to pass to issue.

Because the asserted combination of Yonge and Malek fails to teach or suggest communications between the subnetworks regarding the amount or direction of shift, the applicant respectfully requests that the Examiner's rejection of claims 5 and 6 under 35 U.S.C. 103(a) over Yonge and Malek be reversed by the Board, and the claims be allowed to pass to issue.

Because the asserted combination of Yonge and Malek fails to teach or suggest shifting the frame structure of a subnetwork based on the switchover time of a bridge terminal, the applicant respectfully requests that the Examiner's rejection of claims 11 and 12 under 35 U.S.C. 103(a) over Yonge and Malek be reversed by the Board, and the claims be allowed to pass to issue.

Respectfully submitted

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CLAIMS APPENDIX

1. A network comprising a plurality of subnetworks which can each be connected via bridge terminals and each include a controller for controlling a subnetwork, which controller is provided for shifting the frame structure of its subnetwork to at least a frame structure of another subnetwork.

2. A network as claimed in claim 1, characterized in that a controller is provided for lengthening frames or for inserting an unused phase between successive frames up to a prescribed frame difference relative to the frame structure of the other subnetwork.

3. A network as claimed in claim 1, characterized in that a controller is provided for shortening frames up to a prescribed frame difference relative to the frame structure of the other subnetwork.

4. A network as claimed in claim 1, characterized in that a controller of a first subnetwork is provided for shortening frames, and at least a controller of another subnetwork is provided for lengthening frames or for inserting an unused phase between successive frames up to a prescribed frame difference of the frame structures of the two subnetworks.

5. A network as claimed in claim 1, characterized in that a controller of a subnetwork is provided for communicating with at least another controller of another subnetwork regarding the type of shift.

6. A network as claimed in claim 1, characterized in that a bridge terminal is provided for instructing the controllers of the subnetworks connecting them as to which controller is to carry out a shift and in which direction.

7. A controller in a first subnetwork which can be connected to other subnetworks of a network via bridge terminals, the controller being provided for controlling the first subnetwork and for displacing the frame structure of the first subnetwork relative to at least one frame structure of another subnetwork.

8. A network as claimed in claim 7, wherein

the first subnetwork is a centralized subnetwork comprising a plurality of first terminals, each first terminal having an associated first controller, wherein the controller for controlling the first subnetwork forms associated first medium access control (MAC) frames according to a first MAC frame structure for transmission in the first subnetwork, and wherein one of the first terminals is a first bridge terminal for communication of the first MAC frames to said another subnetwork; and

said another subnetwork is a second centralized subnetwork comprising a plurality of second terminals, each second terminal having an associated second controller, wherein one of the second controllers is a central second controller responsible for forming associated second MAC frames according to a second MAC frame structure for transmission in the second subnetwork, and wherein one of the second terminals is a second bridge terminal for communication of the second MAC frames to said first subnetwork,

wherein the controller for controlling the first subnetwork displaces the first MAC frame structure to the second MAC frame structure.

9. The network as claimed in claim 8, wherein the first controller displaces the first MAC frame structure to the second MAC frame structure by shifting the first MAC frame structure to minimize a waiting time between the first MAC frame structure and the second MAC frame structure.

10. A network, comprising:

a first centralized subnetwork comprising a plurality of first terminals, each first terminal having an associated first controller, wherein one of the first controllers is a first central controller responsible for forming associated first medium access control (MAC) frames according to a first MAC frame structure for transmission in the first subnetwork, and wherein one of the first terminals is a first bridge terminal for communication of the first MAC frames to another subnetwork; and

a second centralized subnetwork comprising a plurality of second terminals, each second terminal having an associated second controller, wherein one of the second controllers is a second central controller responsible for forming associated second MAC frames according to a second MAC frame structure for transmission in the second subnetwork, and wherein one of the second terminals is a second bridge terminal for communication of the second MAC frames to another subnetwork,

wherein the central first controller shifts the first MAC frame structure to the second MAC frame structure.

11. A network as claimed in claim 10, wherein the central first controller shifts the first MAC frame structure by inserting an unused phase between two respective MAC frames of the first MAC frame structure, the unused phase corresponding to a switchover time of the first bridge terminal.

12. A network as claimed in claim 10, wherein the central first controller shifts the first MAC frame structure by lengthening the first MAC frames, said lengthening corresponding to a switchover time of the first bridge terminal.

13. A network as claimed in claim 10, wherein each of the first MAC frames has a duration Tn and the central first controller shifts the first MAC frame structure by lengthening the duration of the first MAC frames to Te, with Te > Tn, in order to synchronize the first and second subnetworks.

14. A network as claimed in claim 13, wherein the central first controller returns the duration of the first MAC frames to Tn after the synchronization.

15. The network as claimed in claim 10, wherein the first bridge terminal is the second bridge terminal.

16. The network as claimed in claim 10, wherein the central first controller is a first bridge controller of the first bridge terminal.

17. The network as claimed in claim 10, further comprising:

a third centralized subnetwork comprising a plurality of third terminals, each third terminal having an associated third controller, wherein one of the third controllers is a central third controller responsible for forming associated third MAC frames according to a third MAC frame structure for transmission in the third subnetwork, and wherein one of the third terminals is a third bridge terminal for communication of the third MAC frames to another subnetwork,

wherein the central third controller shifts the third MAC frame structure to the first MAC frame structure.

18. The network as claimed in claim 17, wherein the first bridge terminal is the third bridge terminal.

19. The network as claimed in claim 17, wherein the first bridge terminal is the second bridge terminal.

EVIDENCE APPENDIX

No evidence has been submitted that is relied upon by the appellant in this appeal.

RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have any bearing on the Board's decision in the pending appeal.